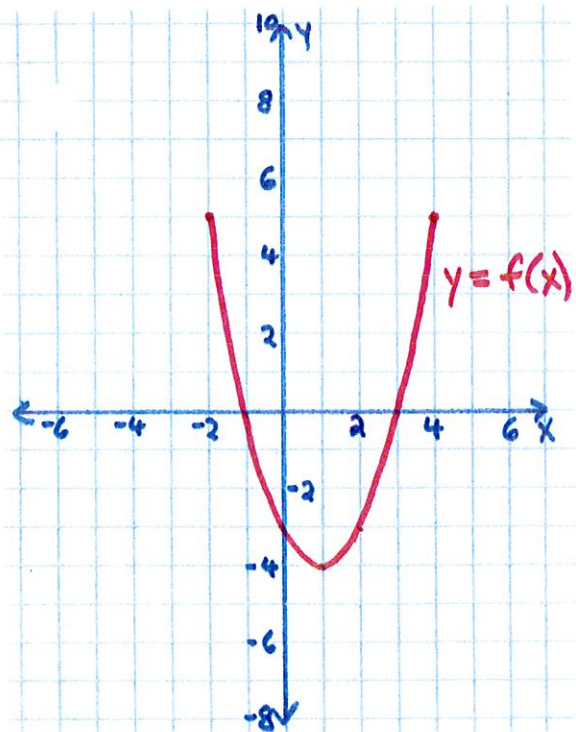
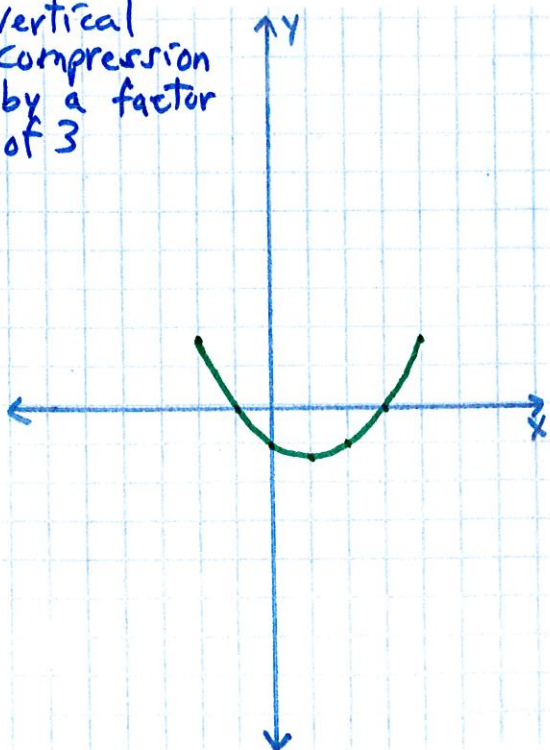


Given the graph of $y = f(x)$ shown immediately below, draw each of the transformations requested:



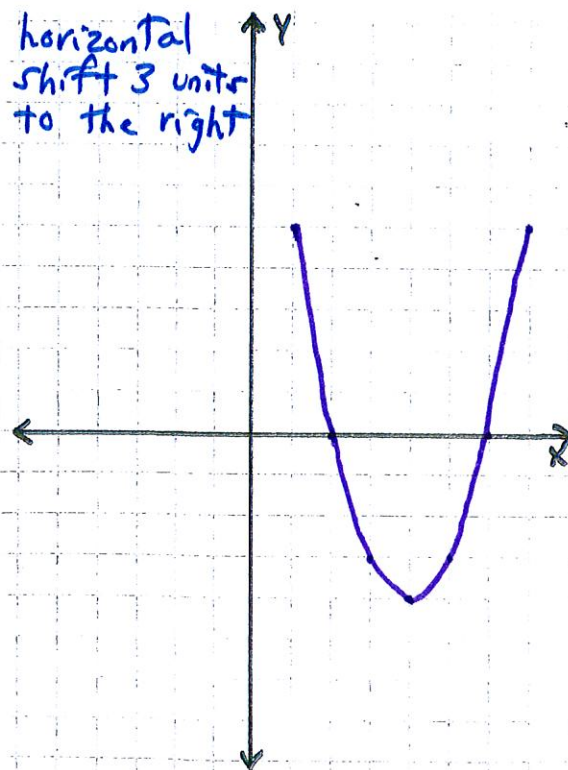
1. Transformation $y = \frac{1}{3}f(x)$

Vertical
compression
by a factor
of 3



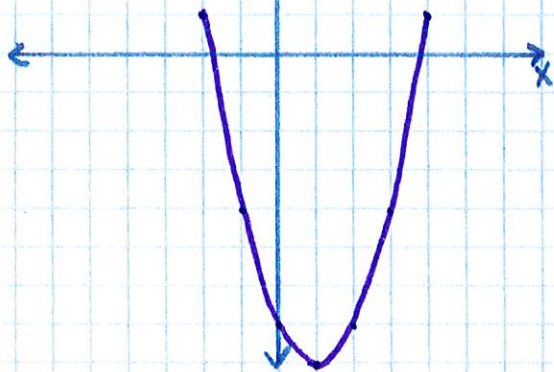
2. Transformation $y = f(x - 3)$

horizontal
shift 3 units
to the right



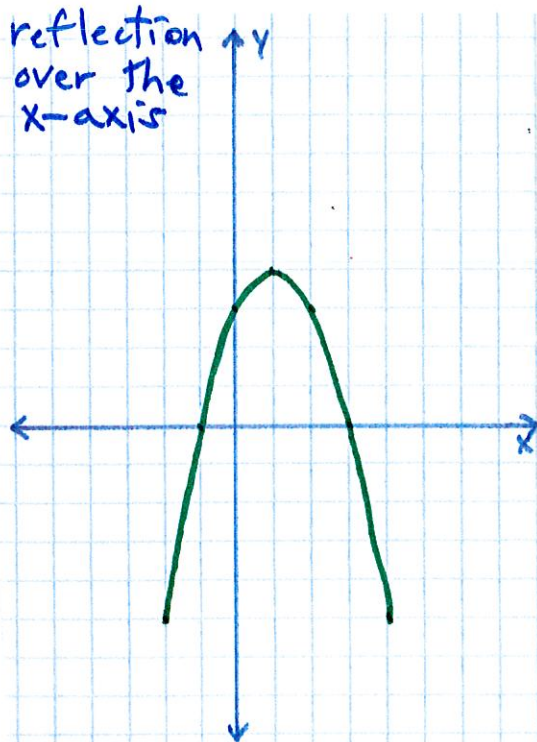
3. Transformation $y = f(x) - 4$

vertical shift
4 units down



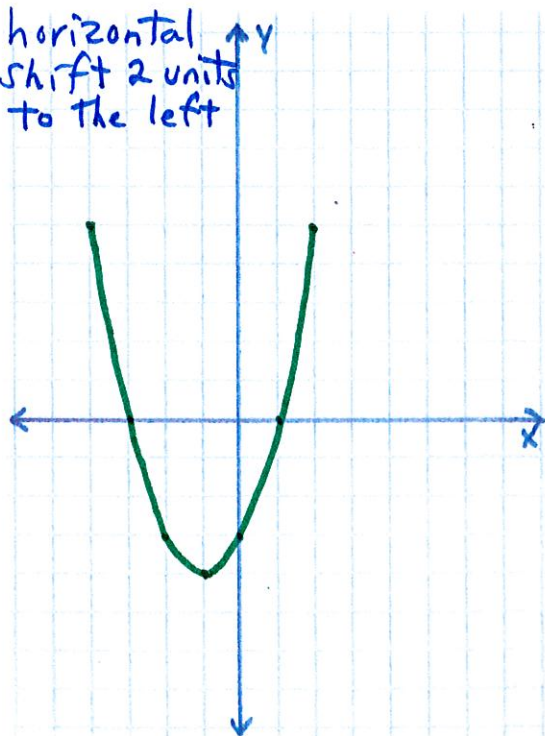
4. Transformation $y = -f(x)$

reflection
over the
x-axis



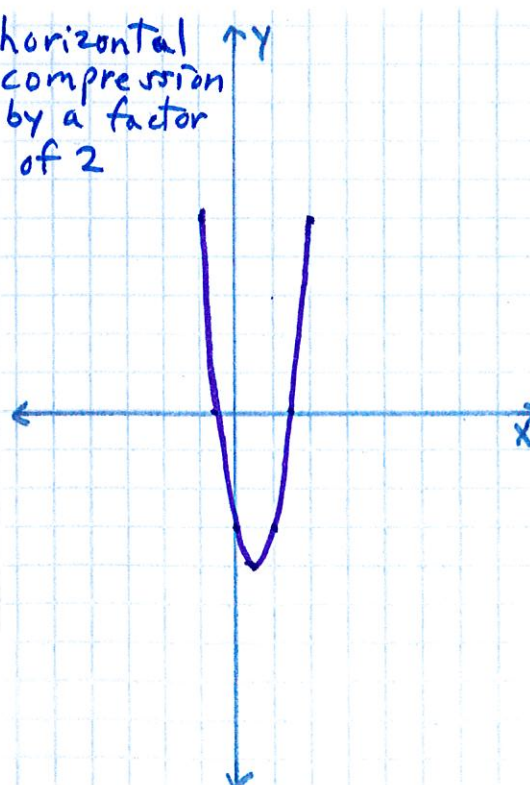
5. Transformation $y = f(x + 2)$

horizontal
shift 2 units
to the left



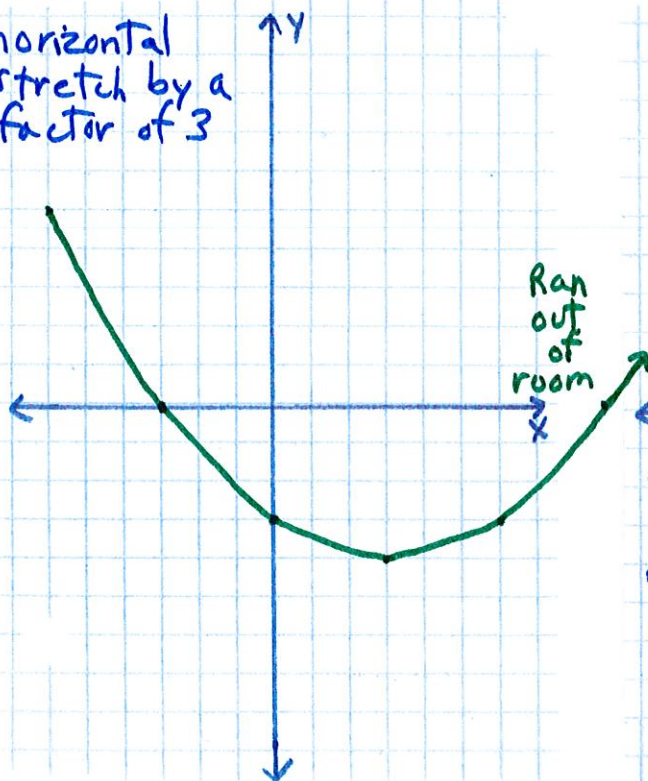
6. Transformation $y = f(2x)$

horizontal
compression
by a factor
of 2



7. Transformation $y = f\left(\frac{1}{3}x\right)$

horizontal stretch by a factor of 3

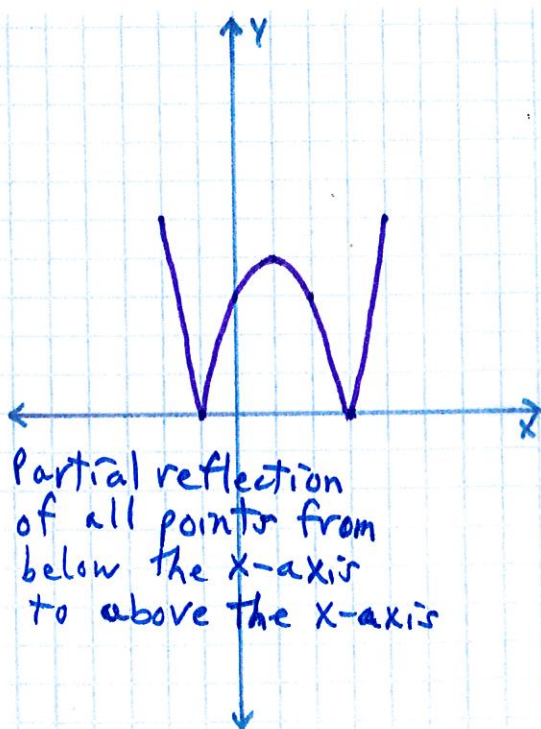


8. Transformation $y = f(x) + 3$

Vertical shift up 3 units



9. Transformation $y = |f(x)|$



Partial reflection of all points from below the x-axis to above the x-axis

10. Transformation $y = 2f(x)$

Vertical stretch by a factor of 2

